DEPARTMENT OF FOOD AND AGRICULTURE

PROPOSED AMENDMENT OF THE REGULATIONS

Title 3, California Code of Regulations

Section 4500, Noxious Weed Species

INITIAL STATEMENT OF REASONS/

POLICY STATEMENT OVERVIEW

Description of the Public Problem, Administrative Requirement, or Other Condition or Circumstance the Regulations are Intended to Address

These regulations are intended to address the obligations of the Department of Food and Agriculture to protect the agricultural industry of California and prevent the introduction and spread of injurious plant pests.

Specific Purpose and Factual Basis

The specific purpose of Section 4500 is to establish the weed species that have been designated as noxious by the Secretary. Plant species that have been designated as noxious weeds may be subject to various restrictions including the statutory provisions for weed-free areas, noxious weed management, and provisions of the California Seed Law. Management or control activities taken against noxious weeds may both protect California's agricultural industry and protect important native plant species.

The factual basis for the determination by the Department that amendment of these regulations is necessary is as follows:

Section 5004, Food and Agricultural Code, defines "noxious weed" as any species of plant that is, or is liable to be, troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species, and difficult to control or eradicate, which the Secretary, by regulation, designates to be a noxious weed. It also provides that in determining whether or not a species shall be designated a noxious weed for the purposes of protecting silviculture or important native plant species, the Secretary shall not make that designation if the designation will be detrimental to agriculture.

Section 4500 designates those weed species that are noxious weed species. Noxious weed species pose a hazard to agriculture and some native plant species in California, although some have been grown for

ornamental purposes. Eleven weed species have been determined to present a serious pest threat and should be added to the list of noxious weed species. The Department proposes to amend Section 4500 to include the following noxious weed species *Ailanthus altissima* (tree of heaven); *Arundo donax* (giant reed); *Centaurea melitensis* (tocalote); *Cirsium vulgare* (bull thistle); *Cortaderia jubata* (jubata grass); *Senecio mikanioides* (cape ivy); *Spartium junceum* (Spanish broom); and *Tamarisk chinensis, T. gallica, T. parviflora, T. ramosissima* (salt cedar).

Ailanthus altissima (tree of heaven) produces seed prolifically, grows rapidly, and can overrun native vegetation. One tree of heaven can produce up to 350,000 seeds in a year. Seedlings establish a taproot three months from germination. The trees can grow several feet per year until they reach 40 to 60 feet, and can obscure road signs and sight lines along rights of way. A high degree of shade tolerance also gives tree of heaven a competitive edge over other species. The tree produces toxins that prevent the establishment of other plant species. The toxin is so effective that it is currently being studied as a potential natural herbicide. The root system is aggressive enough to cause damage to sewers and foundations. Once established, the tree can quickly take over a site and form an impenetrable thicket. It can be very difficult to remove once established, despite cutting, burning, or herbicide treatments. Mowing or cutting actually causes the tree to grow more prolifically, as new sprouts will appear up to 15 feet from stumps. Tree of heaven establishes itself readily on disturbed sites, such as vacant lots of the inner city, railroad embankments, highway medians, fencerows and roadsides. In naturally forested areas, disturbance created by severe storms or insect infestations can open the way for infestation.

Arundo donax (giant reed) has been listed in a survey of public agencies as one of the top 53 weed species of concern. Arundo is one of the fastest growing land plants in the world. Growth rates of up to 0.7 meters/week over a period of several months are not unusual under favorable conditions. It may grow year around in mild coastal areas. Arundo rapidly and catastrophically alters ecological processes in riparian systems through a regime of intensified flooding and fire, ultimately transforming diverse ecosystems into dense, solid stands up to 8 meters tall. Arundo is highly flammable during most of the year. It is fire-adapted and resprouts from its roots after fire. Arundo encourages fire along streams, and fires encourage its spread through the landscape. Its shallow rhizomes provide little structural integrity to streambanks,

resulting in undercutting, bank slumping, and sedimentation of the stream. Bridges in San Diego County have collapsed twice during high flows because of Arundo debris trapped behind the structures. Arundo provides virtually no food or habitat for native species of wildlife. In the Sacramento-San Joaquin Delta region, Arundo interferes with levee maintenance as well as wildlife habitat management. Several special status bird species are associated with California's semi-arid riparian zones, including least Bell's vireo, southwestern willow flycatcher, and yellow-billed cuckoo, all of which are negatively affected by the replacement of willow/cottonwood riparian vegetation by Arundo. Also at risk are protected species such as the arroyo toad, red-legged frog, Western pond turtle, Santa Ana sucker, arroyo chub, unarmored three-spined stickleback, tidewater goby and southern steelhead trout. Arundo dominates the riparian vegetation of numerous river systems of southern California and has invaded central California river valleys in San Luis Obispo and Monterey Counties, the San Francisco Bay Area, in the Sacramento and San Joaquin River Valleys, and is also increasing in the North Coast region.

Centaurea melitensis (tocalote) greatly resembles yellow starthistle. It bears a wicked armature of ¼- to ½inch spines on its flower heads with 3-24 flower heads per plant. Tocalote was introduced during the 1700's from Southern Europe, while yellow starthistle was introduced around 1870. It is most invasive in the central-western and southwestern regions of California in drier areas where yellow starthistle does not thrive. It is less prevalent than yellow starthistle statewide. In the areas where it exists, it can be an abundant component of the flora. For example, in the undeveloped areas of California State Polytechnic University, Pomona, it is the third most common species. In some cases, it apparently can out-compete native vegetation. In 1997, the U. S. Fish and Wildlife Service found it was impacting the habitat for a threatened plant, *Pentachaeta lyonii*.

Cirsium vulgare (bull thistle) was introduced in North America as a seed contaminant, and infests thousands of acres of cultivated land and pastures. Its wind-disseminated seeds and long fleshy taproot make it quite hardy. It is a problem in natural areas as well as disturbed areas, although its association with disturbed areas is more pronounced. In the absence of other vegetation, bull thistle was found to suppress the growth of ponderosa pine seedlings by 25-33%. Bull thistle has been found to threaten some endangered species. For example, the U. S. Fish and Wildlife Service determined that bull thistle was a

threat to *Cirsium hydrophilum* var. *hydrophilum* (Suisun thistle) in the San Francisco Bay, because bull thistle hybridizes readily with other Cirsium. Bull thistle provides little benefit to livestock. Because of its spiny stems and leaves, bull thistle is unpalatable to most livestock. The energy and protein value of bull thistle for livestock is poor. In addition to out-competing more desirable species, the presence of bull thistle in hay decreases feed value and lowers market value. Bull thistle reproduces and disperses solely by seed and does not reproduce vegetatively. Mature plants can produce up to 4,000 seeds. After initial infestation of a locality, movement between sites often occurs through the distribution of impure hay. Various management effects can favor bull thistle. Trampling favors bull thistle as the rosette is relatively resistant. Meadows with highest use are the most heavily infested. When grass growth was reduced by herbicide spraying, bull thistle increased in frequency. Several methods, such as mowing, may be used to manage bull thistle; however, timing is critical. Bull thistle is not typically found on sand or on soils with high humus content and is absent from pure clay soils. It occurs on soils with a wide range of pH values and moisture content, with highest success on neutral soils with intermediate moisture content and rich in nitrogen.

Cortaderia jubata (jubata grass) is a perennial grass native to South America that is invading the California coast from Humboldt County to San Diego County. It forms a large mound of leaf blades with sharp serrated edges. Several tall pink fan-like inflorescences arise from the dense leaf blades. Each inflorescence is made up of thousands of female flowers, which can produce over 100,000 lightweight seeds. Seed is formed asexually (apomixes); therefore, no pollination or fertilization is required for viable seed to be produced by this plant. This "selfing" strategy is advantageous in establishing founding populations when colonizing new areas. Within the first year after germination, a plant can produce seeds of its own. The seeds are highly adapted to dispersal by wind, and dispersal distances up to 18 miles are thought to be common.

Jubata grass is an aggressive colonizer of disturbed or open sites such as roadsides, cut banks, dunes, coastal bluffs, rock outcrops, landslides and logged lands, or any other location with bare or disturbed ground. Once established, it competes vigorously with native vegetation. Jubata grass reduces conifer growth, reduces conifer seedling recruitment, and occupies space otherwise inhabited by native plant species. It is especially dangerous to native coastal dune and shrub communities where many rare endemic

California plant species exit. Within the coastal influence, it is able to invade a wide variety of habitats: coastal strand, northern coastal scrub, coastal sage scrub, north coastal coniferous forest, closed cone pine forest, redwood forest and chaparral. One jubata grass plant can get 3 meters in diameter, 3 meters in height (not including the inflorescence). The massive size, in addition to razor-sharp leaves, hamper recreational and commercial access to range or woodlands, as well as control efforts. In newly colonized areas, jubata grass can spread rapidly. In 1958, the range of jubata grass was known as reaching from Ventura County to Monterey County. Ten years later it was reported at locations from San Diego County to the Oregon border. Local resource managers state that jubata grass does not confine itself to disturbed or bare areas. Once it becomes established there it is capable of invading adjacent natural areas. The U.S. Fish and Wildlife Service has cited jubata grass as a direct threat to the rare Gowen cypress in the Monterey area. Among the endangered species whose habitat is being encroached upon by jubata grass are the Crystal Springs fountain thistle, the mission blue butterfly, and the Santa Cruz long-toed salamander. A federally listed endangered species, the Smith's blue butterfly habitat is also being threatened by jubata grass. Jubata grass can cause significant problems in forestry. The grasses compete with young trees and slow early re-growth on logged lands. Fire danger also increases, due to loss of access and dead foliage. In Monterey County, jubata grass is rated as one of the worst weeds. An estimated 300,000 acres are infested or at risk of being infested with jubata grass. Already, $50,000 to $75,000 each year are spent on jubata grass control programs by the Bureau of Land Management and the Army. The California Exotic Pest Plant Council has recognized jubata grass as one of the most widespread, invasive wildland pest plants in California because of the risks jubata grass places on preserving native California plant and wildlife and the amount of time and money spent on control efforts.

Senecio mikanioides (cape ivy) is now a serious pest along the coasts of California and Oregon, and in Hawaii, Maui, and Australia. Recent mapping of cape ivy has identified over 1100 locations in California. Infestations range from a few square meters to several acres in size. Cape ivy is a vine and primarily expands through vegetative reproduction. Fragments as short as one half inch can take root and start new plants, even after having laid dry on the surface of the soil for several months. Runoff or landscape machinery can carry fragments to new areas where they start new colonies. Cape ivy can grow to form impenetrable mats in both shade and sun. It climbs native shrubs and trees, forming a dark canopy layer up

to nine meters in height. Growth rates of individual plants and populations have been measured at several locations, and individual stems average one foot of growth per month. Resource managers in the Golden Gate National Recreation Area consider cape ivy to be their top vegetation management priority. It is spreading more rapidly than any other non-native invasive plant species in the park. Ongoing work clearly shows that cape ivy is associated with significant reductions in vascular plant species richness. Grasses and annual species are consistently missing from cape ivy infested plant communities. In addition, the abundance and richness of seedling perennials is significantly reduced, indicating that as plants age and die, there may be little establishment of native plants. These trends imply that these habitats will likely be dominated by cape ivy to an even greater extent, affecting the future structure and composition of these plant communities and potentially altering ecosystem function as well. There is also evidence that cape ivy is associated with a significant reduction in the abundance of beetles and flies in at least two riparian plant communities, and these impacts could affect other species dependent on the insects. Cape ivy may also impact native stream communities where it finds favorable growing conditions. Cape ivy is also a threat to sensitive species, with four federally listed species and nine California Native Plant Society and/or state-listed species threatened by habitat modification, displacement and shading caused by cape ivy. Host and nectar plant populations for two federally endangered butterflies, the Mission Blue and the San Bruno Elfin, are also threatened by cape ivy's spread more effective to date.

Spartium junceum (Spanish broom) is easily confused with Scotch or French broom, and they pose similar dangers. Spanish broom is a potential fire hazard in California, because the mature plants form dense, woody undergrowth in hard-to-reach, hilly areas. All parts of the plant are poisonous if eaten. Of the three brooms, Spanish broom is the least widespread and is considered less of a problem than the other two. It is known from fourteen counties in scattered localities throughout coastal California, where it spreads aggressively in waste places and along roadsides. Spanish broom has begun to significantly invade native vegetation.

Tamarisk chinensis, T. gallica, T. parviflora, T. ramosissima (salt cedar) are aggressive, woody invasive plants that were estimated to cover as much as a million acres of flood plains, riparian areas, wetlands and lake margins in the western United States by 1986. Each tamarisk can produce 500,000 wind-dispersed

seeds per year. In addition to increasing soil salinity, tamarisk produces large amounts of dead leaves and branches that provide ample fuels for wildfires and increase fire frequency. After fires, tamarisk sprouts vigorously, while native riparian trees and shrubs generally do not. The result, over time, is a riparian community dominated by tamarisk, as a consequence of both increased soil salinity and fire frequency. Tamarisk consumes large quantities of water, on the order of four acre-feet annually, and possibly more than woody native plant species that occupy similar habitats. Many land managers cite cases of springs that dried up following invasion by tamarisk, and that began to flow again after the tamarisk was removed. These water sources are critical to the survival of desert bighorn sheep, deer, the endangered desert slender salamander, frogs, western pond turtles, desert pupfish and a variety of bird species. In studies of several areas, tamarisk stands have been found to have lower bird density, bird species richness, and diversity than do the native cottonwood-willow vegetation.

Estimated Cost or Savings to Public Agencies or Affected Private Individuals or Entities

The Department of Food and Agriculture has determined that Section 4500 does not impose a mandate on local agencies or school districts. The Department also has determined that no savings or increased costs to any state agency, no reimbursable costs or savings to local agencies or school districts, no nondiscretionary costs or savings to local agencies or school districts under Section 17561 of the Government Code, and no costs or savings in federal funding to the State will result from the proposed action.

The cost impact of the changes in the regulations on private persons or businesses is not expected to be significant.

The Department has determined that the proposed action will not have a significant adverse economic impact on housing costs or businesses, including the ability of California businesses to compete with businesses in other states. The Department's determination that the action will not have a significant adverse economic impact on businesses was based on the following:

The maximum number of nursery stock producers, who may produce nursery stock of the species proposed for addition to the noxious weed species list, has been calculated by the Department as 2,961.

These nursery stock producers may discontinue production and sales of these plants after they are listed which may result in a loss of $464 per year per producer. The amendments to the regulation do not establish restrictions or reporting requirements with which these producers must comply; therefore, there are no costs for compliance and losses would not be a significant.

ASSESSMENT

The Department has made an assessment that the proposed amendment to the regulation would not: 1) create or eliminate jobs within California; 2) create new business or eliminate existing businesses within California; or 3) affect the expansion of businesses currently doing business within California.

Alternatives Considered

The Department of Food and Agriculture must determine that no alternative considered would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

Information Relied Upon

The Department relied upon the following studies, reports, and documents in amending Section 4500:

Memorandum of December 20, 2001 to Barbara Hass from Nathan Dechoretz, with attachments, nine pages.

"Element Stewardship Abstract for *Ailanthus altissima* (Tree-of-Heaven)," The Nature Conservancy, Marc C. Hoshovsky, nine pages.

"Tree-of-Heaven *Ailanthus altissima*," Plant Conservation Alliance, Alien Plant Working Group, April 6, 1999, nine pages.

"Ecology and Management of *Arundo Donax*, and Approaches to Riparian Habitat Restoration in Southern California," The Nature Conservancy of New Mexico, Gary P. Bell, 11 pages.

"Element Stewardship Abstract for *Arundo donax* (Giant Reed)," The Nature Conservancy. Marc Hoshovsky, seven pages.

"Yellow Starthistle Information," Weed Research and Information Center, four pages.

"An Assessment of Exotic Plant Species of Rocky Mountain National Park," USGS Northern Prairie Wildlife Research Center, two pages.

"Biological Control of the Bull Thistle," North Carolina Department of Agriculture Plant Industry Division, Richard McDonald, three pages.

"Element Stewardship Abstract for *Cortaderia jubata* (Pampas Grass)," The Nature Conservancy, David L. Peterson & Mary J. Russo (Revision), seven pages.

"Ban Pampasgrass in the City of San Diego - A Proposal," California Native Plant Society, San Diego Chapter, Carrie Schneider, five pages.

"Management of Cape-ivy *(Delairea odorata)* in the Golden Gate National Recreation Area," California Exotic Pest Plant Council, Maria E. Alvarez, eight pages.

"The Biogeography of Cape Ivy *(Delairea odorata)*," San Francisco State University Department of Geography, Sayaka Eda, five pages.

"Information about Spanish Broom," Washington State Noxious Weed Control Board, July 11, 2001, three pages.

"Element Stewardship Abstract for *Spartium junceum* (Spanish Broom, Weaver's Broom)," The Nature Conservancy, Marc Hoshovsky, August 2001, 12 pages.

"Saltcedar *Tamarix aphylla, T. chinensis, T. gallica, T. paviflora,* and *T. ramosissima*," Plant Conservation Alliance, Alien Plant Working Group, Rose-Marie Muzika and Jill M. Swearingen, July 7, 1999, four pages.

"Element Stewardship Abstract for *Tamarix ramosissima, Tamarix pentandra, Tamarix chinensis, Tamarix parviflora* (Saltcedar, Salt Cedar, Tamarisk)," The Nature Conservancy, Alan T. Carpenter, December 1998, 29 pages.

"Noxious Weeds…A Serious Threat To Shasta County's Resources," Shasta County Weed Management Area, leaflet.

"Dirty Dozen," Yuba/Sutter Weed Management Area, leaflet.

"Fighting the Weed Wildlife," Yolo County Weed Management Area, leaflet.

"Pampasgrass and Jubatagrass Threaten California Coastal Habitats," University of California - Weed Research and Information Center, January 1999, leaflet.

"Estimated Annual Economic Impact, Noxious Weed Species, Amendment of Section 4500," California

Department of Food and Agriculture, Plant Health and Pest Prevention Services, Permits and Regulations, July 15, 2002, one page.

"County Agricultural Commissioners' Data, Calendar Year 2000," California Department of Food and Agriculture, California Agricultural Statistics Service, pages 46-50.